

PIKES PEAK
RADIO AMATEUR
ASSOCIATION
(PPRAA)

Activities/Meetings

- The October HAM breakfast will be at:
Crazy Otto's Diner,
4423 Centennial Blvd

The November 7th HAM
breakfast will be at
Sarges Grill
6436 S US Highway 86-87
Fountain,

Join us between
8:00-9:30 AM

All are warmly invited

- PPRAA Board Meeting
Mon, October 12th
- PPRAA general membership
meeting, Wednesday, Octo-
ber 14th
- 10 Meter/2 Meter net
Every Thursday 7:00 pm
28.390 MHz—USB
144.200 MHz-USB

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Volume 65 Issue 10

October 2015

Amateur Radio Emergency Service (ARES)

(Reprinted from www.arrl.org/ares)

The Amateur Radio Emergency Service® (ARES) consists of licensed amateurs who have voluntarily registered their qualifications and equipment, with their local ARES leadership, for communications duty in the public service when disaster strikes.

ARES Membership Requirements

Every licensed amateur, regardless of membership in ARRL or any other local or national organization is eligible to apply for membership in ARES. Training may be required or desired to participate fully in ARES. Please inquire at the local level for specific information. Because ARES is an Amateur Radio program, only licensed radio amateurs are eligible for membership. The possession of emergency-powered equipment is desirable, but is not a requirement for membership.



If you're an individual Emergency Communication volunteer...-

- You need to be trained. In order to provide support in the event of an emergency—or even in a non-emergency situation—you need to have the proper training and [licensing](#). Learn more about the ARRL [Emergency Communications Training](#) course.

- You need to be equipped with sustaining skills. What if when you get to a location, there is no food and the sleeping conditions are undesirable? Before you leave on your assignment, you need to make sure you have coping skills that enable you to be able to do your job operating under the conditions you are assigned to—from hardship conditions to making sure you're able to work the equipment.

- You need to prepare your family for your absence. When you leave home and head for a disaster area, your family has to be both physically and mentally able to cope. After a disaster, when a volunteer comes home, he or she can be confronted by some mental health issues, for which there are several resources. Many volunteers experience everything from fatigue or exhaustion to depression.

- You need to find ways to volunteer. You would first want to become a member of your local ARES, CERT, RACES or local emergency management organization. Then try the [American Red Cross](#) or Web sites like [Ready.gov](#).

PPRAA Scholarship Fund—Fund Raiser

PPRAA T-Shirts may be purchased for \$20.00. At this time the orders are being taken during PPRAA club meetings.

Scholarship donations can be taken either directly or anonymously. See ppraa.org/donations for donation information.



PPRAA Officers and Board of Directors

PPRAA Board of Directors consists of four elected officers, seven board members, as well the past president (time limit dependent). The Ø-Beat editor is a board appointed position and is also a member of the board.

Officers include:

- ⇒ President
- ⇒ Vice-President
- ⇒ Secretary
- ⇒ Treasurer

To send board member's email, browse to the officers section of our website: <http://ppraa.org/about-ppraa/officers>

President	Raleigh Holcomb	N4HYF
Vide-President	Jim Bishop	KDØKQL
Secretary	Diana Nordstrom	KCØNPP
Treasurer	Pam Scott	WØPRS
Past President	Michael Derbort	KCØELG
Board Member	Dan Martin	KDØSMP
Board Member	Glenn Brodt	N3ULW
Board Member	Jim Rader	KDØNQM
Board Member	Charlie Coyner	KD6CBC
Board Member	Jim Harris	WØEM
Board Member	Virgil Yost	NØXRS
Board Member	Frank Roger	KB3PDT
Ø-Beat Editor	Dan Scott	WØRO
Webmaster	Doug Nielsen	N7LEM

Online Resources

PPRAA Website

<http://ppraa.org>

The PPRAA website is the cornerstone for club related information, events, and technical information.

In addition you can register, pay dues, and submit donations. Donations to the PPRAA college scholarship fund are managed by FAR Scholarship Committee

Facebook / Google+

Follow activities as they unfold, or get reminders of upcoming events.

Links to both Facebook and Google+ social media sites can be found on the PPRAA.org.

Or from each social media site search on: Pikes Peak Radio Amateur Association

PPRAA Forums

The PPRAA forums are intended to allow users to exchange ideas, ask and answer amateur radio related questions, and plan/discuss upcoming events.

This is a fantastic, but underutilized, tool. Check it out and register at:

PPRAA.Forumotion.net

Monthly Activities

Membership Meeting

Held the 2nd Wednesday of the month starting at 7:00.

IHOP
5749 Stetson Hills Blvd
(Just west of Powers Blvd)

NOTE: Many show up at 6 pm for kibitzing and grub.

Board Meeting

IHOP
5749 Stetson Hills Blvd Colorado Springs, CO 80906

6:30pm—8:00pm
On the Monday preceding the membership meeting.

Board Meetings are open to all members.

Ham Breakfast

Location changes monthly: Check ppraa.org or table of contents, page I for the breakfast meeting location.

10 Meter/2 Meter Net

Every Thursday at 7pm
Starts on 28.390 USB then transitions to 2 Meter SSB at 144.200 USB.

Meeting Presentation Topics

Last Meeting

Mike, WV7T

The WV7T Antenna workshop

This Month's Meeting

Elections

Next Meeting

Kevin, K0BBA

PPRAA club station—Tower's going up

At the September PPRAA general membership meeting it was revealed that through the generous donations from PPRAA members the tower fund had reached \$754. That was done in just 1 month, wow!

In order to get the first tower erected and operational this year Dan, WØRO, made a motion for the club to fund the remainder of the monies needed for the first tower. The motion to allocate funds not to exceed \$700 passed.

The second tower still needs to be funded. Once the second tower is completed we will have 2 beams up, the existing Butternut 9-band vertical, and a number of wire antennas.

Saturday September 19th energetic club members with shovels attacked to the ground and

successfully dug the required hole for the tower base. These volunteers also dug the holes for the posts that will hold the guy line.

September 26th was the second work day which the cement was poured. The cement is curing and will be in fine shape for erecting the tower October 10th. Drop by to help with the tower starting at 10:00 AM. Please bring a construction helmet just in case a bolt or something slips out of a climber's hand or pocket.

Hope to see you there!

Needed—Satellite

One recent donation to PPRAA was a satellite antenna system which includes a UHF and VHF circular polarized antennas and rotator.

The rotator is an Azimuth-Elevation combination system ideal for space communications.

To include space communications at the PPRAA club station what is needed is an UHF/VHF transceiver designed for AM-SAT communications.

If you have such a radio and would like to donate it, we would be more than happy to accept it.

VE—VE's and Testing

FCC created the VEC system to provide initial licensing examination of prospective new hams and those wanting to upgrade.

FCC authorized VEC organizations, such as the ARRL, to oversee the work of their certified Volunteer Examiners (VEs). The VEC serves as a liaison between the exam applicant and the FCC.

Service and volunteerism are a large part of Amateur Radio today. Becoming a Volunteer Examiner (VE) may help you

quench that volunteerism thirst.

Learn about how you can become a PPRAA VE associated with the ARRL VEC program by reviewing the [ARRL Volunteer Examiner Manual](#).

If you are a VE registered with PPRAA and are not yet on the PPRAA Yahoo VE group, please send an email to our VE coordinator, ve@ppraa.org.

If you are wanting to take a test or are a VE and want to pencil in VE dates on your cal-

endar, please visit ppraa.org for upcoming test sessions.

VE test sessions are scheduled at Colorado Technical Institute. Room to be determined closer to each session.

Additional information about becoming a VE can be found at: www.arrl.org/become-an-arrl-ve.



PPRAA Board Meeting Minutes—5 September 2015

Call To Order - 18:40

Approval of the August Meeting Minutes - Michael Derbort motions to approve as published, Frank seconds, board approves.

Committee reports

Treasurer's Report - \$13,334

Antenna Committee - ~\$779 at last count for tower donations, no word yet from insurance. Use the poles from the solar panels to anchor the guys. Send the list of the parts to the club and see if we can't get more donations that way. Concentrate on one tower for now.

Scholarship Fund - ~\$155, deadline is March.

Club station - Is currently operational, activated for the COQP using AFØS. Need to consider a new radio for our there, that is not unrestricted. Need a better guide for antenna and power labeling.

Asset committee - Inventory was completed at the club station. If anyone has other items, please contact the board.

Zero Beat - Still need articles! Submit articles to zerobeat@ppraa.org with [ZeroBeat] in the subject and/or cc w0prs@me.com for guaranteed receipt

ARES - Tour de Cure on Sep 12, Thanksgiving and Christmas coming up

Picnic - Went very well. Some concern about not being allowed to help clean up

Elections - Next month! 3 board-at-large positions are coming open and all officer positions are available. November's board meeting will be both incoming and outgoing boards.

COQP - We have received 79 logs as of this meeting.

Around the Table

Mike A. - public events at the station location Jam-boree On The Air?

Jim B. - Raleigh and Jim are attending a Scout Camporee in Elbert

Next Board Meeting: October 12th, Location: IHOP

Adjourn - Doug moves to adjourn, Diana seconds, 19:45

Activities in the Rocky Mountain Division

Socorro Hamfest

- Saturday October 3, 2015
- Socorro, New Mexico
- More info [here](#).

Two-Day License Class

- Saturday October 3 & 10, 2015
- Black Forest Fire Station
- More info [here](#).

285 TechConnect Radio Club Fall Tech-Fest

- Saturday November 7, 2015
- Lakewood, Colorado
- More info [here](#).

2016 ARRL Rocky Mountain Division Convention

- Friday May 13 thru Sunday May 15, 2016
- Keystone, Colorado
- More info [here](#).

PPRAA General Meeting Minutes—9 September 2015

Call To Order – 19:00

Introductions

Silent Keys - N/A

Approval of the August Meeting Minutes - Jim B motions to approve as published, Jim R seconds, the club passes the motion.

Committee reports

Treasurer's Report - \$13,334, \$754 in August for the Tower fund, \$156 in the Scholarship Fund

Tower Report - need \$620 to finish placing the first tower. Dan S motions to not exceed \$700 from general funds to complete construction. Michael D seconds with the provision that the club will accept physical donations of parts needed. Club passes. Parts list to be sent to the club. Club's currently owned routers are in need of serious repair or replacement. Doug N offers to donate one of his routers. The current plan is to use the poles from the solar panels as guy wire ties to cut down on the cost of cement for the tower. Will need to borrow a backhoe to place the concrete and poles. Potential work party will be on Sept 19th at 9am at the club location. Bring gloves, shovels, and/or pickaxes.

Club T-Shirts - Picture of prototype was passed around. Price set at \$20 with any profits going to the Scholarship Fund. Please contact the board if you wish to order a club shirt.

Zero Beat - Need more articles! Please send them to zerobeat@ppraa.org as often as you wish. Include [ZeroBeat] in the sub-

ject and/or cc: w0prs@me.com to guarantee receipt.

CSVHFS Conference - 23-26 July at the Denver Marriott in Westminster. Check the club website for more information.

HamCon 2016 - Will be in Keystone on May 13-

15. Rooms will start at \$99/night

ARES - Skateboard downhill on Sept 12/13, need 5 volunteers. Tour De Cure on Sept 26, need 25 volunteers. Go to PPARES website and sign up. They host a Tuesday night net at 7pm on the 97 repeater.

HR-1301 - US House of Rep version of CO 5315 -041. Do not have our local rep (Lamborn) co-signing it yet. Please contact ARRL to

send a letter to your local rep.

Senate Bill 1685- A similar bill to HR-1301 has been introduced into the Senate. Visit the ARRL's website to send a letter to your Senator.

Scholarship Fund - Need donations! Currently at \$156 out of \$1000.

COQP - Jim Madsen, K3ILC went out to the club station and activated it using the club call AF0S for others to get 500pts. Made about 75 contacts on CW and SSB

Remote Station - Awaiting technology checks

before being moved to the club location

Elections - October is club board elections. If interested in becoming a board member, please email the board.

10m Net - 28.390 USB at 7pm on Thursdays.

Club Breakfast: Oct 3rd, Location: Crazy Otto's Diner, 4423 Centennial Blvd.

Next Meeting: Oct 14th, Location: IHOP

Adjourn - 20:30



Officers of the board of directors (repost)

When the October meeting rolls around, it will be bringing our annual election of the board of directors with it.

Criteria for running for a seat on the board are not overly stringent. You must be a full member of PPRAA. Therefore, if you paid the big bucks, you are eligible.

The board of directors do a lot of activities to keep the club activities humming along. Board members also have a tendency to become active in all the

events including working on the club station, active in ARES, and attend the monthly general membership meetings.

If you would like to fill one of the 2-year positions please get in touch with the PPRAA secretary at secretary@PPRAA.org.

The webmaster and ØBeat editor are the only appointed positions. If you would like to be involved with either of these, please inform the club secretary as well (especially ØBeat!).



ISOTRON 80/40

GET READY FOR THE FALL HF SEASON

Columnist Ralph Bilal, WDØEJA is the president of Bilal Company. Ralph has been a presenter at the PPRAA club meetings.

Use of an amplifier Part 2

I have been publishing this technical article since January of 2013. For the past 35 years I have manufactured the Isotron Antennas. This also involved helping many with their very difficult installations. Some of the information will be from what we learned solve these problems. Some information will be right from a text book or credible article.

You are welcome to contact me at wd0eja@isotronantennas.com with question you may have.

Last article described some basics of a solid state RF amplifier. This time, a few facts about tube amplifiers.

Tube amplifiers are still in common use. It appears that the preference for tube amplifiers will be with us for a while.

Several of the tubes used are very rugged and durable devices. The life of many of these lasts for years even decades. This of course is if you operate it within its limits.

The tubes are mostly operated in a "grounded grid" configuration. What is a grid?

The grid would correspond to the gate on the MOSFET described in the last article. It turns the tube on, off or somewhere in between. It is the most delicate part of the tube. The current going through the grid should be monitored so it does not exceed its limits. Most amplifiers have a grid current meter, but not all.

The grounded grid amplifiers have the input at the cathode.

This is normally the bottom of the tube and is closest to ground potential. This corresponds to the Source on a MOSFET. Biasing is usually at the cathode. There are other variations.

Bias is a set voltage that turns the tube partially on. When biased there is normally a small current flow through the tube that can be seen on the Plate current meter. In standby, this current is off.

The RF from your transmitter is applied to the cathode through a matching circuit. Therefore, the power from the transmitter is added to the power of the amplifier.

The plate is where the high voltage is applied. This is a lethal voltage source. Extreme caution should be exercised when working on this part of the tube. The range of voltage is from 1200 volts and up. Common voltages are 2400 to 3500 volts and can deliver 1 amp. It can be fatal. This part of the tube corresponds to the Drain on a MOSFET.

From the Plate, the RF is sent through a matching circuit and then to the antenna. The impedance of the tube is high, therefore the matching circuit is used for the 50 ohms needed for the antenna.

If it is a glass tube, it glows in the dark. Tubes need a heater called a filament to work. The filament can be also the cathode or it can heat the cathode independently.

The current through a tube is much lower than that of a MOSFET. The voltage is much higher. Therefore the tube is considered a voltage amplifier and the MOSFET a current amplifier.

Tube amplifiers are usually a bigger piece of equipment than a solid state amplifier.

A tube amplifier is more forgiving to operator error. Especially when over driven or SWR is not real low. The tuned input and output circuits help.

It is personal choice which type of amplifier to use. Both types, solid state or tube, have advantages and disadvantages.

73,

Ralph WDØEJA

October 2015

Please forward this article to those you feel would be interested.

*Bilal Company
137 Manchester Dr.
Florissant, CO 80816*

PH/FX: 719/687-0650
wd0eja@isotronantennas.com

Start an amateur radio virtuous circle

By Dan Romanchik, KB6NU

Let me know what you think.
E-mail me at:
cwgeek@kb6nu.com.

By Dan Romanchik, KB6NU

On the ham instructor Yahoo Group (https://groups.yahoo.com/neo/groups/ham_instructor/info) recently, we talked about the classes that we are going to be offering this fall. About his Tech class, Bob, K0NR, noted, "Currently have about 30 students signed up. We keep thinking we'll run out of interested people but they keep coming."

I've noticed the same thing here, too. I keep thinking that I am going to run out of people to teach, but I have no problem at all filling my classes. In fact, I'd go so far as to say that the more people that have taken my class, the more people there are that want to take it.

Of course, this makes perfect sense. If there are more people out there who have amateur radio licenses, there are more people out there talking about amateur radio, and actually doing amateur radio. And, the more people out there talking about and doing amateur radio, the more likely it is that other

people will become interested in amateur radio and get their licenses as well.

It's an amateur radio "virtuous circle."



What does this tell you? Well, if you're in a place where amateur radio seems to be dying out, or belong to a club that is slowly fading away, start a class! I think every club should hold classes at least once a year, even if that first class has only one or two students.

Those first few students are the start of your virtuous circle.

Don't know how to start a class? I can help you there. Start by reading my blog post,

"Teaching a one-day class" (<http://www.kb6nu.com/teaching-a-one-day-tech-class/>). It has a lot of practical information, including tips on how to select a venue, how to publicize the class, how to get peo-

ple to sign up for the class, and finally, how to teach the class.

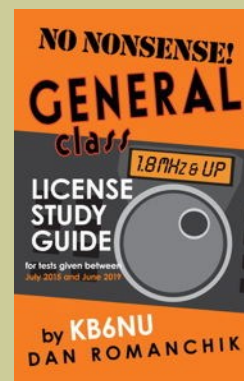
You might also want to join the ham_instructor mailing list I mentioned earlier. It's a relatively low-volume list, but the subscribers have a lot of experience that you can tap into.

Also, get a copy of my free Tech study guide (<http://www.kb6nu.com/study-guides/>). Not to brag (well, OK I am bragging), but it I really think that it's the best study guide for a one-day class. The study guide presents the topics in exactly the same order as I cover them in class. Read through it and you'll see what I mean.

If you need more help, or even just some encouragement, e-mail me, and I'll do what I can to help you.

When he's not agonizing over what radio to buy, Dan operates CW on 30m and blogs about amateur radio at:
www.kb6nu.com

He's the author of the "No Nonsense" amateur radio license study guides and the CW Geek's Guide to Having Fun with Morse Code.



The new General Class question pool will soon take effect, and I've updated the No-Nonsense General Class License Study Guide. It is now available in PDF, Kindle, and Nook e-book formats, as well as in print. My study guides have helped thousands upgrade to General. They can help you, too. Study guides for the Tech and Extra exams are available, too

ØBeat Columnist
Dan Romanchik, KB6NU

Contacting PPRAA board members, officers, and committees

No matter if you want to contact one PPRAA officer, all the officers, a board member or one of many committees, browse to the PPRAA.org web site and select "About PPRAA" then select "Officers".



Contacting committee members via email is equally easy. Browse to PPRAA.org then select "About PPRAA" and select "Committees".



VE Testing & Education—Colorado Springs (PPRAA)

Pikes Peak Radio Amateur Association (PPRAA)

When:
Feb, Apr, Jun, Aug, Oct, Dec
2nd Saturday at 9 AM

Location:
Colorado Technical University (CTU)
4435 North Chestnut
Colorado Springs, CO 80907

Directions available at:
ppraa.org/ve-testing
or contact:
Dennis Major
VE@PPRAA.org



Mike Anderson, WV7T does personal and small group training for all license classes.

Mike also does Morse code training.

Mike can be reached at:
719-229-8610
vv7t@aol.com

VE Testing Woodland Park (MARC)

MOUNTAIN AMATEUR RADIO CLUB (MARC)

When:
Jan, Mar, May, Jul, Sep, Nov
1st Saturday at 10 AM

Location:
Woodland Park
Woodland Park Library-
Community Meeting RM
218 East Midland Avenue

Directions:
<http://www.nx0g.org/ve.html>
or contact
Wes Wilson (KØHBZ)
k0hbx@arrrl.net
Call (719) 687-8758



Applicants will need the following items:

1. A valid PHOTO ID, driver's license preferred (if you do not have a valid photo ID, please call for alternative identification requirements).
2. Your FRN or SOCIAL SECURITY NUMBER (now required – this includes children).
3. Your CURRENT ORIGINAL amateur radio license (if any) and a PHOTOCOPY for the VE Team to keep.
4. The CURRENT ORIGINAL CSCEs you have and a PHOTOCOPY for the VE Team to keep.
5. Cash, Check or Money Order for \$15 (standard ARRL VE Fee). Checks and money orders should be made out to ARRL. This covers all exams you wish to take at this VE session.

Teams, is to not allow same day retests on failed exams.

PPRAA – Colorado Springs testing only:

Anyone passing their Technician Class examination at a PPRAA test session will receive a free year's membership to the Pikes Peak Radio Amateur Association

NOTE: PPRAA and MARC VE Team policy, as with many VE

Radio Contest? Why?

Radio Contest? Why?

Excerpt from HamRadioSchool.Com. For the full article please browse to:

<http://www.hamradioschool.com/radio-contest-why/>

The hobby of ham radio has a lot of different activities to participate in. Radio contesting (sometimes referred to as *radiosport*) is one of those fun activities that almost anyone can enjoy. The basic objective on most radio contests is to make as many radio contacts as possible which is influenced by the scoring method used for the contest. That is, some contacts may be worth more points than other contacts and there are score "multipliers" for such things as the number of countries worked, number of states worked, etc. There are several reasons to participate in a radio contest:

- **Make lots of contacts in a short period of time.** Contests generate a lot of radio activity with many stations on the air. Contacts are usually very quick, which means you can work a lot of stations in a

short period of time.

- **Compete against other radio hams for high score.** Radio contests are competitions, so you can compete against the other participants (or maybe your friends) to see who gets the highest score.

- **Compete against yourself, to see how big of a score you can achieve.** Another option is to compete against yourself: set a goal for your score and see if you can hit it. Or try to improve on your score from last year's contest.

Work towards operating awards. Radio contest participation can also help you achieve operating awards such as [Worked All States](#) (WAS), [DX Century Club](#) (DXCC) and [CO WPX](#) (Worked Prefixes). You'll want to choose a contest that is set up to encourage radio contacts consistent with the award. For example, DXCC is all about working new countries so you'd want to get on the air during a DX contest.

October—State QSO parties

State QSO parties are a great way to test the contesting arena. To find out more on each QSO Party as well as other contests around the world browse to <http://www.hornucopia.com/contestcal/>.

The states having QSO parties in October are:

California	Oct 3rd-4th
Arizona	Oct 10th-11th
Pennsylvania	Oct 10th-11th
New York	Oct 17th-18th
Illinois	Oct 18th-19th

Fldigi now includes FSQ mode

If you have not yet delved into the exciting world of sound card digital modes you are missing a lot of fun!

There are many uses for digital modes, including low power DX, emergency service, contesting, or simple QSOs.

One of the most popular and most diverse digital mode programs is Fldigi. When the Fldigi development team released v3.22.11 of Fldigi they introduced a the new FSQ mode into Fldigi.

Murry Greenman, ZL1BPU developed and included it in Con Wassilieff's, ZL2AFP, Microsoft Windows™ FSQCALL software.

FSQ Offset Incremental Frequency Keying modulation based on its 33 tones provides very robust decoding.

Specifically developed to provide a Fast Simple QSO (FSQ) mode.

FSQ is reported to work well under NVIS and sunrise/sunset conditions on the lower bands and works well for short skip

and grey-line on higher bands.

Although specifically developed for HF, it can also be used on VHF FM, and clearly has a much wider useful range of operation conditions than other more conventional digital modes.

To download Fldigi browse to www.w1hkj.com/download.htm

**PIKES PEAK RADIO
AMATEUR
ASSOCIATION**

Send membership application to:

Pikes Peak Radio Amateur
Association, Inc.
P.O. Box 16521
Colorado Springs, CO 80935

General Questions:
ppraa@ppraa.org

ØBeat:
zerobeat@ppraa.org



ppraa.org

Get Radio Active, get on the air!

Membership Application:

Date: ____ / ____ / ____ **New Membership: Yes / No**

Name: _____

Address: _____

City/State/Zip: _____

Call: _____ **Class:** ____ **Phone # (____)** _____

Email: _____

Are you a ARRL member: Yes / No

Additional Family Members:

Name1: _____ **Call:** _____ **Class:** ____ **ARRL Member: Yes / No**

Name2: _____ **Call:** _____ **Class:** ____ **ARRL Member: Yes / No**

Name3: _____ **Call:** _____ **Class:** ____ **ARRL Member: Yes / No**

____ \$15.00 Full Member

____ \$10.00 Full Member over 65

____ \$18.00 Family Membership

____ \$12.00 Family Membership over 65

\$____ **Membership Amount**

\$____ **Scholarship Fund Donation**

\$____ **PPRAA General Fund Donation**

\$____ **Total**

2015 Scholarship Fund

This last year the donations to PPRAA Scholarship Fund have been slipping.

The scholarship is for a hard science or math related field of study. Those fields of study are, or are similar to, Physics, Chemistry, Math, Electrical Engineering, Bio Engineering, etc.

There are many ways to make your tax deductible donation to this fund. Contributions may be made via:

⇒ [PPRAA website \(http://ppraa.org\)](http://ppraa.org)

⇒ Part of your membership renewal,

⇒ Club meetings and event.

⇒ Directly to the fund at:
FAR Scholarship Committee
P.O. Box 911
Columbia, MD 21044

**Make checks to:
PPRAA Scholarship**

Ø- Beat Banner

Photo by Dan—WØRO.

This photograph was taken August 29th 2015.

The theme of the banner is Pikes Peak Region. If you would like to submit pictures for the Ø-Beat banner, please send them to: zerobeat@ppraa.org

Please Include "[Ø-beat]" as part of the subject line.